

REMARKS

Claims 20-21 and 23-33 will remain pending in the present application. No amendments are made in this response. Accordingly, proper consideration of each of the pending claims is respectfully requested at present.

Rejection under 35 U.S.C. § 102(b)

Claims 20-21 and 24-32 stand rejected under 35 U.S.C. § 102(b) as being anticipated by the publication by Tamura *et al.* (“*Study on the anode behavior of Sn and Sn-Cu alloy thin film electrodes*,” *Journal of Power Sources*, Vol. 107, p. 48-44 (2002); (hereinafter “Tamura *et al.* (2002)”) (see paragraph 3 of the Office Action). Applicants respectfully traverse and request that the Examiner withdraw the rejection based on the following explanations.

Legal Standard for Determining Anticipation

“A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). “When a claim covers several structures or compositions, either generically or as alternatives, the claim is deemed anticipated if any of the structures or compositions within the scope of the claim is known in the prior art.” *Brown v. 3M*, 265 F.3d 1349, 1351, 60 USPQ2d 1375, 1376 (Fed. Cir. 2001) “The identical invention must be shown in as complete detail as is contained in the ... claim.” *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989). The elements must be arranged as required by the claim, but this is not an *ipsissimis*

verbis test, i.e., identity of terminology is not required. *In re Bond*, 910 F.2d 831, 15 USPQ2d 1566 (Fed. Cir. 1990).

Distinctions over Tamura et al. (2002)

As recited in independent claim 20, a non-aqueous secondary battery of the present invention has the following configurations:

- (a) The intermetallic compound, which contains at least one kind of element A selected from Sn, In, Ge, Ga, Pb, Al, Sb, and Si, and an element X that does not substantially react with Li, is provided on the collector of the negative electrode as an active material layer;
- (b) The conductive layer is provided between the active material layer of the negative electrode and the collector; and
- (c) The main element of the conductive layer is different from the main element of the intermetallic compound.

The USPTO alleges that the claimed invention is anticipated by Tamura *et al.* (2002), stating as follows at page 3, lines 5-13 of the Office Action:

"In this case, the Cu₆Sn₅ second phase layer represents the active material layer and the Cu-Sn-like phase first layer represents the protective layer. The Sn-Cu phase layers have different compositions. It is noted that the main constituents (for purpose of compositional properties and characteristics) of both the Cu-Sn-like (i.e. Cu₃Sn) phase first layer and the Cu₆Sn₅ second phase layer are different. In chemical terms, the main compositions of Cu-Sn-like (i.e. Cu₃Sn) phase first layer and the Cu₆Sn₅ second phase layer are not equal (← emphasis supplied). The main constituents of the first phase layer includes three atoms of Cu and one of Sn whereas the main constituents of the second phase layer includes six atoms of Cu and five atoms of Sn. Thus, their respective constituents are dissimilar." (Emphasis added)

From the above statement in the Office Action, it appears that the USPTO considered whether the proportions (compositions) of elements in two layers are the same or not, and eventually concluded that when the proportions of the elements in the two layers are different, the main constituents in the two layers are also different from each other.

However, in independent claim 20, it is positively recited that “a main element of the conductive layer is different from a main element of the intermediate compound.” That is, in claim 20 of the instant invention, whether a main element of the conductive layer is different from a main element of the intermediate compound is determined by comparing the kind of elements in two layers with each other.

In this respect, elements contained in the “Cu₆Sn₅ second phase layer” and the “Cu-Sn-like phase first layer” disclosed in Tamura *et al.* (2002) are Cu and Sn. Namely, both the layers are composed of the same kind of elements. Thus, the description of Tamura *et al.* (2002) does *not* meet the claimed limitation “a main element of the conductive layer is different from a main element of the intermediate compound,” as recited in independent claim 20. Thus, Tamura *et al.* (2002) fails to disclose or suggest the invention recited in independent claim 20.

Additionally, as to pending claim 24, the USPTO alleged that Tamura *et al.* (2002) reported thicknesses of less than 0.5 μm (see page 4, line 4 of the Office Action). However, in connection with Fig. 8, the Tamura *et al.* (2002) reference merely discloses that both the thickness of the Cu₆Sn₅ layer in the as-deposited anode and the surface Sn layer on the annealed negative anode are less than 0.5 μm (see explanation of Fig. 8 on page 52 of Tamura *et al.*

(2002)). Furthermore, the thickness of a Cu₃-Sn-like phase formed between the Cu₆Sn₅ layer and the collector is 1 to 2 μm in the schematic model of FIG. 8(b).

Thus, Tamura *et al.* (2002) fails to disclose or suggest that the conductive layer of 0.05 to 0.5 μm is formed between the active material layer and the collector.

Accordingly, claim 24 is also not anticipated by Tamura *et al.* (2002) since the Tamura *et al.* (2002) reference fails to disclose or suggest the claimed thickness of the conductive layer.

Furthermore, the secondary references (i.e., U.S. Published Application No. 2003/0180619 and International Publication No. WO 02/25757) also fail to disclose or suggest the claimed thickness of the conductive layer, and moreover, provide no reason or rationale that would allow one of ordinary skill in the art to arrive at the invention recited in pending claim 24. Thus, a *prima facie* case of obviousness is not established even if the cited references are combined. Consequently, the invention of claim 24 is not obvious over the cited references.

Accordingly, it is submitted that instantly pending claim 20 and its dependent claims are not anticipated by Tamura *et al.* (2002), and are also not rendered obvious thereby, since the cited Tamura *et al.* (2002) reference provides no reason or rationale that would allow or lead one of ordinary skill in the art to arrive at the instant invention as recited in independent claim 20, or its dependent claims.

Based on the above explanation, Applicants respectfully request that the Examiner withdraw the rejection.

Rejection under 35 U.S.C. § 103(a)

Claims 20-21, 23, 25-26 and 29-33 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Published Application No. 2003/0180619 (hereinafter referred to as "Tamura U.S. '619") in view of Tamura *et al.* (2002).

Claim 33 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over International Publication No. WO 02/25757 (hereinafter referred to as "Tamura WO '757") in view of Tamura *et al.* (2002).

Applicants respectfully traverse and request that the Examiner withdraw the rejection based on the following explanations.

Legal Standard for Determining Prima Facie Obviousness

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in Applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

"There are three possible sources for a motivation to combine references: the nature of the problem to be solved, the teachings of the prior art, and the knowledge of persons of ordinary

skill in the art.” *In re Rouffet*, 149 F.3d 1350, 1357, 47 USPQ2d 1453, 1457-58 (Fed. Cir. 1998) (The combination of the references taught every element of the claimed invention, however without a motivation to combine, a rejection based on a *prima facie* case of obvious was held improper.).

“In determining the propriety of the Patent Office case for obviousness in the first instance, it is necessary to ascertain whether or not the reference teachings would appear to be sufficient for one of ordinary skill in the relevant art having the reference before him to make the proposed substitution, combination, or other modification.” *In re Linter*, 458 F.2d 1013, 1016, 173 USPQ 560, 562 (CCPA 1972).

Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art. “The test for an implicit showing is what the combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art.” *In re Kotzab*, 217 F.3d 1365, 1370, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000). See also *In re Lee*, 277 F.3d 1338, 1342-44, 61 USPQ2d 1430, 1433-34 (Fed. Cir. 2002) (discussing the importance of relying on objective evidence and making specific factual findings with respect to the motivation to combine references); *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

The Supreme Court of the United States has recently held that the teaching, suggestion, motivation test is a valid test for obviousness, but one which cannot be too rigidly applied. See *KSR Int'l Co. v. Teleflex Inc.*, 127 SCt 1727, 82 USPQ2d 1385 (U.S. 2007). The Supreme Court in *KSR Int'l Co. v. Teleflex, Inc.*, *ibid.*, reaffirmed the Graham factors in the determination of obviousness under 35 U.S.C. § 103(a). The four factual inquiries under Graham are:

- (a) determining the scope and contents of the prior art;
- (b) ascertaining the differences between the prior art and the claims in issue;
- (c) resolving the level of ordinary skill in the pertinent art; and
- (d) evaluating evidence of secondary consideration.

Graham v. John Deere, 383 U.S. 1, 17-18, 148 USPQ 459, 467 (U.S. 1966).

The Court in *KSR Int'l Co. v. Teleflex, Inc.*, *supra.*, did not totally reject the use of "teaching, suggestion, or motivation" as a factor in the obviousness analysis. Rather, the Court recognized that a showing of "teaching, suggestion, or motivation" to combine the prior art to meet the claimed subject matter could provide a helpful insight in determining whether the claimed subject matter is obvious under 35 U.S.C. § 103(a).

Even so, the Court in *KSR Int'l Co. v. Teleflex, Inc.*, *ibid.*, rejected a rigid application of the "teaching, suggestion, or motivation" (TSM) test, which required a showing of some teaching, suggestion, or motivation in the prior art that would lead one of ordinary skill in the art to combine the prior art elements in the manner claimed in the application or patent before holding the claimed subject matter to be obvious.

Further, the Examiner bears the initial burden of presenting a *prima facie* case of obviousness. *In re Oetiker*, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). “[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336, quoted with approval in *KSR Int’l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1741, 82 USPQ2d 1385, 1396 (2007).

Claims 20-21, 23, 25-26 and 29-33

Distinctions over the Cited References

First, as explained above, the Tamura *et al.* (2002) reference fails to disclose or suggest the features of the present invention (e.g., “a main element of the conductive layer is different from a main element of the intermediate compound”).

Next, Tamura U.S. ‘619 and Tamura WO ‘757 merely disclose a thin alloy film provided on a current collector. However, they also fail to specifically disclose or suggest each of the limitations of the present invention as recited in instantly pending independent claims 20 and 33, and the dependent claims that depend from claim 20.

Therefore, none of the cited references disclose or suggest each of the recited features of the present invention, and more particularly, fail to provide any reason or rationale that would allow one of ordinary skill in the art to arrive at the instant invention as claimed.

Combination of the Cited References

A *prima facie* case of obviousness is not established even if the cited references are combined since none of the cited references disclose or suggest the above features of the present invention (e.g., the main element of the conductive layer is different from the main element of the intermetallic compound), which is recited in each of independent claims 20 and 33. Likewise, it follows that a person having ordinary skill in the art would not be motivated by any of the teachings of the cited references and by the general knowledge to arrive at the present invention, again this is because no reason or rationale is found in the cited art that would allow one of ordinary skill in the art to arrive at the instant invention as claimed.

Accordingly, the present invention (i.e., independent claims 20 and 33, and dependent claims thereon) is not obvious over the cited references of record. Any contentions of the USPTO to the contrary must be reconsidered at present.

Based on the foregoing explanation, Applicants respectfully request that the USPTO withdraw the above outstanding obviousness rejections.

Provisional Request for Interview

Should the present response not place the application in condition for allowance, Applicants respectfully request a telephone interview with the Examiner. The Examiner is respectfully requested to contact Toyohiko Konno, Reg. No. L0053, at the telephone number of the undersigned below.

CONCLUSION

In view of the above remarks, it is submitted that instantly pending claims 20-21 and 23-33 are in condition for allowance at present. A Notice of Allowability is respectfully requested indicating that claims 20-21 and 32-33 are patentable under the provisions of Title 35 of the United States Code.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Toyohiko Konno (Reg. No. L0053) at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§ 1.16 or 1.14; particularly, extension of time fees.

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Respectfully submitted,

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